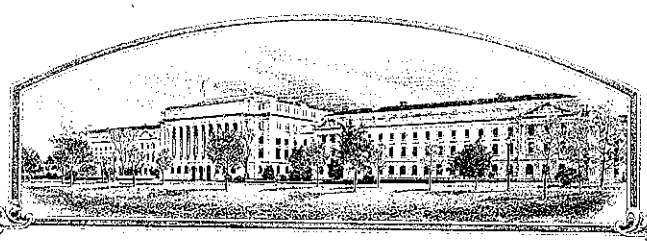


No. 9500026

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

W-L Research, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ALFALFA

'WL 252 HQ'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of January in the year of our Lord one thousand nine hundred and ninety-seven.

Attest:

Marsha A. Stanton

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and edition date on all reproductions.* OMB APPROVED NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(INSTRUCTIONS ON REVERSE)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)
W-L RESEARCH, INC.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.
91-12

3. VARIETY NAME
WL 252 HQ

4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP)
2000 Oak Street
Bakersfield, CA 93301

5. PHONE (include area code)
805/327-4491

FOR OFFICIAL USE ONLY

PVPO NUMBER
9500026

FILING
Date: Nov. 4, 1994
Time: ☐ A.M. ☐ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2325.00
Date: 11/4/94
Certificate Fee: $ 300.00
Date: 01/24/97

6. GENUS AND SPECIES NAME
Medicago sativa L.

7. FAMILY NAME *(Botanical)*
Leguminosae

8. CROP KIND NAME *(Common Name)*
Alfalfa

9. DATE OF DETERMINATION
November 29, 1993

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.)
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
California

12. DATE OF INCORPORATION
June 30, 1988

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
M. A. Peterson, Director of Research
W-L Research, Inc.
8701 W. US Hwy. 14
Evansville, WI 53536-8752

PHONE (include area code): 608/882-4100

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow* INSTRUCTIONS *on reverse)*
- a. ☒ Exhibit A, Origin and Breeding History of the Variety
- b. ☒ Exhibit B, Novelty Statement
- c. ☒ Exhibit C, Objective Description of Variety
- d. ☒ Exhibit D, Additional Description of Variety
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership
- f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office November 3, 1994
- g. ☒ Filing and Examination Fee ($2,325) made payable to "Treasurer of the United States"

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act)* ☐ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____).
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," GIVE NAMES OF COUNTRIES AND DATES) _____
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE
Michael Peterson	Vice President/Director of Research	11-3-94
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

SD-470 (06-93) *Editions of Forms LS-470 (3/86) and CSSD-470 (5/89) are to be destroyed.*

CONTINUED ON REVERSE

Exhibit A

Origin and Breeding History of WL 252 HQ

WL 252 HQ is a 111-plant synthetic variety resulting from phenotypic recurrent selection for high forage quality (high crude protein, low acid and neutral detergent fibers) using Near Infrared Reflectance Spectroscopy. Source material traces to an elite experimental line developed through selection for winter survival in a spaced-plant nursery at Evansville, WI. Additional selection was performed for multifoliate expression. Parental germplasm traces to WL 316 (25%), Edge (25%), G-2833 (25%), and Vertus (25%). The 111 parental selections were grown in an isolation cage at Warden, WA. Breeder (Syn 1) seed was bulked (all seed from all plants) following harvest in 1991.

Approximate germplasm source contributions are: M. falcata - 4%; Ladak - 5%; M. vari - 24%; Turkistan - 3%, Flemish - 59%; and Chilean - 5%.

Type and Frequency of Variants

No variants are recognized in WL 252 HQ beyond the limits given in Exhibit C.

Evidence of Uniformity and Stability

We have observed stability and uniformity in essential and distinguishing characteristics (e.g. disease resistance, fall dormancy, flower color) over two generations of WL 252 HQ seed increase: Syn 1 to Syn 2 and Syn 2 to Syn 3. WL 252 HQ is as uniform as other alfalfa varieties previously accepted by State seed certification programs.

Exhibit B

Novelty Statement for WL 252 HQ

WL 252 HQ is a fall dormant (Group 2) variety that possesses superior winterhardiness, pest resistance, and higher forage quality when compared to most alfalfa varieties with similar adaptation.

WL 252 HQ is most similar to DK 122, without qualification. Looking at overall disease and insect resistance, plant color, regrowth after cutting, multileaf expression, and winter-hardiness suggests that WL 252 HQ and DK 122 are very similar. However, there are several characteristics which demonstrate that these two varieties are significantly different. WL 252 HQ is highly resistant to Fusarium wilt; DK 122 is resistant (Table 1). WL 252 HQ is resistant to stem nematode; DK 122 displays low resistance to this nematode pest (Table 2). Finally, WL 252 HQ displays significantly lower ADF and NDF and significantly higher relative feed value (RFV) when compared to DK 122 (Table 3[A]).

There are four additional varieties which are similar to WL 252 HQ: Crown II, LegenDairy, Profit, and MultiKing 1. However, there are distinct and significant differences between WL 252 HQ and each of these varieties. WL 252 HQ is resistant to stem nematode; Crown II displays low resistance to this nematode pest (Table 2). WL 252 HQ also displays significantly higher percent crude protein and relative feed value and significantly lower ADF and NDF when compared to Crown II (Table 3[A]). Finally, WL 252 HQ is a Group 2 fall dormant variety, whereas Crown II is a Group 3 for fall dormancy reaction (Table 4).

WL 252 HQ is also similar to LegenDairy. However, WL 252 HQ displays low resistance to Aphanomyces root rot and LegenDairy is resistant to this disease (Table 5). In addition, WL 252 HQ is moderately resistant to the spotted alfalfa aphid whereas LegenDairy is highly resistant to this aphid pest (Table 6). Finally, WL 252 HQ is resistant to Verticillium wilt, while LegenDairy is highly resistant to this disease (Table 7).

WL 252 HQ is also similar to Profit. However, WL 252 HQ is highly resistant to anthracnose and Profit is moderately resistant to this disease (Table 8). In addition. WL 252 HQ is highly resistant to Phytophthora root rot, whereas Profit is resistant to this disease (Table 9). WL 252 HQ is resistant to stem nematode and Profit is moderately resistant to this nematode pest (Table 10). Finally, WL 252 HQ is a multifoliate variety, displaying approximately 58% multi-foliate plants (see Exhibit D); Profit is a standard trifoliate variety with essentially no multileaf expression.

WL 252 HQ is also similar to MultiKing 1. However, WL 252 HQ is a Group 2 fall dormant variety, whereas MultiKing 1 is a Group 3 dormancy variety (Table 4). In addition, WL 252 HQ is highly resistant to Phytophthora root rot, and MultiKing 1 is resistant to this disease pest (Table 9). WL 252 HQ is resistant to stem nematode, whereas MultiKing 1 is moderately resistant (Table 10). Finally, WL 252 HQ displays significantly higher percent crude protein and significantly lower percent NDF when compared to MultiKing 1 (Table 3[B]).

Table 1 > Fusarium Wilt Resistance* - Evansville, WI (1994)

Entry	% Resistance	A.S.I.
WL 252 HQ (HR)	68	1.51
Agate (R)	57	1.73
DK 122 (R)	48	2.13
MnGN-1 (S)	4	4.47
Mean	44	2.46
LSD (.05)	13	0.43
CV %	13.3	18.6

*Data was obtained from a 3-replicate space-planted field trial with approximately 60 plants/entry/replicate.

4

Table 2 > Stem Nematode Resistance* - Warden, WA (1994)

Entry	% Resistance	A.S.I.
Lahontan (R)	38	3.0
WL 252 HQ (R)	39	3.0
DK 122 (LR)	14	3.9
Crown II (LR)	11	4.0
Ranger (S)	6	4.2
Mean	22	3.6
LSD (.05)	9	0.2
CV %	16	4.8

*Data was obtained from a 4-replicate greenhouse flat test with approximately 50 seedlings per entry per replicate.

WL 252 HQ

Table 3(A) > Forage Quality Evaluations - Freeport, IL (1993)

Freeport, Illinois
1993 Forage Quality Results (NIR)
Seeded April 28, 1992

Cut 1 (May 26)

Entry	Maturity*	% CP	% ADF	% NDF	RFV
WL 252 HQ	3.0	24.0	26.4	36.4	175
WL 322 HQ	2.9	23.7	28.1	36.9	169
DK 122	2.8	24.0	27.6	36.8	170
Magnum III-wet	3.1	23.1	28.7	38.0	162
Blazer XL	3.2	23.4	27.9	38.0	164
Mean	3.0	23.6	27.7	37.2	168
LSD (.05)	NS	0.7	1.2	1.1	7
CV %	6.7	4.0	4.2	3.4	4.3

Cut 2 (July 14)

Entry	Maturity*	% CP	% ADF	% NDF	RFV
WL 252 HQ	3.7	19.4	34.5	44.5	130
WL 322 HQ	3.6	19.9	34.4	43.8	132
DK 122	3.6	18.6	36.6	46.2	121
Magnum III-wet	3.8	18.2	35.4	45.8	124
Blazer XL	3.9	18.5	36.6	46.4	121
Mean	3.7	18.9	35.5	45.3	125
LSD (.05)	NS	1.2	1.6	1.5	7
CV %	5.8	4.9	3.5	2.6	3.9

Table 3 (A) Continued

Two-Cut Average

Entry	Maturity*	% CP	% ADF	% NDF	RFV
WL 252 HQ	3.4	21.7	30.5	40.4	152
WL 322 HQ	3.3	21.8	31.2	40.4	150
DK 122	3.2	21.3	32.1	41.5	146
Magnum III-wet	3.5	20.6	32.1	41.9	143
Blazer XL	3.6	21.0	32.2	42.2	142
Mean	3.4	21.3	31.6	41.3	146
LSD (.05)	NS	0.8	1.3	1.1	6
CV %	5.4	3.0	2.8	2.3	3.1

*Maturity Scored 1-8: 1 = vegetative, 2 = early bud, 3 = mid-bud, 4 = late bud, 5 = early flower, 6 = mid flower, 7 = late flower, 8 = post flower

WL 252 HQ

Table 3 (B) > Forage Quality Evaluations - Evansville, WI (1993)

Evansville, Wisconsin
1993 Forage Quality Results (Wet Chemistry)
Seeded August 5, 1992

Cut 1 (June 11)

Entry	Maturity*	% CP	% ADF	% NDF	RFV
WL 252 HQ	5.0	20.6	33.7	42.3	138
WL 322 HQ	4.7	19.7	33.9	43.2	135
MultiKing 1	4.8	18.3	34.1	43.9	132
Pioneer 5373	4.9	17.9	34.9	44.5	129
Crown II	4.9	18.3	35.6	45.7	125
Mean	4.9	19.0	34.4	43.9	132
LSD (.05)	NS	0.9	1.0	1.0	7
CV %	9.1	4.4	3.7	3.4	4.8

Cut 2 (July 20)

Entry	Maturity*	% CP	% ADF	% NDF	RFV
WL 252 HQ	4.4	18.3	35.9	45.0	127
WL 322 HQ	4.4	19.2	35.8	45.0	126
MultiKing 1	4.2	17.8	36.2	45.2	126
Pioneer 5373	4.4	17.5	37.4	46.8	120
Crown II	4.2	18.2	36.9	45.9	122
Mean	4.3	18.2	36.4	45.6	124
LSD (.05)	NS	0.9	1.1	1.0	6
CV %	6.5	3.0	4.7	4.2	4.2

Table 3 (B) Continued

Two-Cut Average

Entry	Maturity*	% CP	% ADF	% NDF	RFV
WL 252 HQ	4.7	19.4	34.8	43.6	132
WL 322 HQ	4.6	19.5	34.9	44.1	131
MultiKing 1	4.5	18.1	35.1	44.5	129
Pioneer 5373	4.7	17.7	36.2	45.6	125
Crown II	4.6	18.3	36.3	45.8	124
Mean	4.6	18.6	35.5	44.7	128
LSD (.05)	NS	0.9	0.8	0.9	5
CV %	5.8	3.5	3.0	3.4	4.0

*Maturity Scored 1-8: 1 = vegetative, 2 = early bud, 3 = mid-bud, 4 = late bud, 5 = early flower, 6 = mid flower, 7 = late flower, 8 = post flower

Table 4 > Fall Dormancy Reaction* - Evansville, WI (1994)

Clipped - 9/13/94
Scored - 10/24/94

Entry (Dormancy Group)	Fall Height (Inches)
Norseman (1)	3.8
Vernal (2)	5.8
WL 252 HQ (2)	6.5
Ranger (3)	6.9
Crown II (3)	7.6
MultiKing 1 (3)	8.0
Mean	6.4
LSD (.05)	0.9
CV %	10.9

*Fall Dormancy was measured as natural plant height in a space-planted, four-replicate trial with approximately 45 plants/entry/replicate.

10

Table 5 > Aphanomyces Root Rot Resistance* - Evansville, WI (1993)

Entry	% Resistance	A.S.I.
WAPH-1 (R)	56	2.73
LegenDairy (R)	33	3.20
WL 252 HQ (LR)	14	4.16
Agate (S)	0	4.58
Mean	26	3.67
LSD (.05)	12	0.34
CV %	24.2	7.13

*Data obtained from a 4-replicate greenhouse tub test with approximately 60 seedlings/entry/replicate.

Table 6 > Spotted Alfalfa Aphid Resistance* - Bakersfield, CA (1994)

Entry	% Resistance	A.S.I.
LegenDairy (HR)	55	2.2
Kanza (R)	43	2.6
WL 252 HQ (MR)	24	3.3
Ranger (S)	0	4.6
Mean	30	3.2
LSD (.05)	11	0.2
CV %	5.5	4.4

*Data obtained from a 4-replicate greenhouse flat test with approximately 75 seedlings/entry/replicate.

12

Table 7 > Verticillium Wilt Resistance* - Evansville, WI (1993)

Entry	% Resistance	A.S.I.
LegenDairy (HR)	52	2.1
WL 252 HQ (R)	34	2.8
Vertus (R)	33	2.9
Saranac (S)	3	4.7
Mean	31	3.1
LSD (.05)	16	0.5
CV %	20.3	8.5

*Data obtained from a 3-replicate greenhouse cone test with approximately 80 plants/entry/replicate.

Table 8 > Anthracnose Resistance* - Evansville, WI (1993)

Entry	% Resistance
WL 252 HQ (HR)	60
Saranac AR (R)	47
Profit (MR)	23
Saranac (S)	1
Mean	33
LSD (.05)	9
CV %	13

*Data obtained from a 4-replicate greenhouse flat test with approximately 45 seedlings/entry/replicate.

Table 9 > Phytophthora Root Rot Resistance* - Evansville, WI (1994)

Entry	% Resistance	A.S.I.
WL 252 HQ (HR)	58	2.93
Profit (R)	43	3.29
Agate (R)	39	3.45
MultiKing 1 (R)	36	3.54
Saranac (S)	3	4.84
Mean	36	3.61
LSD (.05)	7	0.26
CV %	24.8	4.13

*Data obtained from a 4-replicate greenhouse tub test with approximately 60 seedlings/entry/replicate.

Table 10 > Stem Nematode Resistance* - Warden, WA (1993)

Entry	% Resistance	A.S.I.
Lahontan (R)	45	2.7
WL 252 HQ (R)	38	2.8
MultiKing 1 (MR)	22	3.5
Profit (MR)	17	3.8
Ranger (S)	6	4.2
Mean	26	3.4
LSD (.05)	10	0.3
CV %	25	6.0

*Data was obtained from a 4-replicate greenhouse flat test with approximately 50 seedlings/entry/replicate.

16

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
COMMODITIES SCIENTIFIC SUPPORT DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
ALFALFA *(Medicago sativa* sensu Gunn et al.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
W-L Research, INc.	91-12	WL 252 HQ

ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
2000 Oak Street
Bakersfield, CA 93301

FOR OFFICIAL USE ONLY
PVPO NUMBER
9500026

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place numbers in the boxes to designate the expressions which are characteristic of the commerical generations of the application variety. Data for quantitative plant characters should be based on a minimum of 100 plants. Include leading zeros when necessary (e.g., [0][8][9]) for quantitative data. Comparative data should be determined from varieties entered in the same trial. Plant color may be precisely designated by using any recognized color chart, e.g.. The Munsell Plant Tissue Color Charts.

1. WINTERHARDINESS:

[8] CLASS:

1 = Very Non-Winterhardy (CUF 101)
2 = Non-Winterhardy (Moapa 69)
3 = Intermediately Non-Winterhardy (Mesilla)
4 = Semi-Winterhardy (Lahontan)
5 = (Du Puits)
6 = Moderately Winterhardy (Saranac)
7 = (Ranger)
8 = Winterhardy (Vernal)
9 = Extremely Winterhardy (Norseman)

TEST LOCATION: Evansville, WI

2. FALL DORMANCY:

FALL DORMANCY (DETERMINED FROM SPACED PLANTINGS)

TESTING INSTITUTION AND LOCATION	DATE OF LAST CUT	DATE REGROWTH SCORED	REGROWTH SCORE OR AVERAGE HEIGHT				LSD .05
			APPLICATION VARIETY	CHECK VARIETIES*			
				Vernal	Ranger	Saranac	
Warden, WA	9/92	10/92	4.3	3.7	5.0	6.2	1.0

* CUF 101, Moapa 69, Mesilla, Lahontan, Du Puits, Saranac, Ranger, Vernal, or Norseman as appropriate.

Specify scoring system used: Height in inches from a replicated spaced-plant nursery

[7] Fall Growth Habit (Determined from Fall Dormancy Trials)

1 = Erect (CUF 101)
3 = Semierect (Mesilla)
5 = Intermediate (Saranac)
7 = Semidecumbent (Vernal)
9 = Decumbent (Norseman)

3. RECOVERY AFTER FIRST SPRING CUT (In Southwest, first cut after March 21):

[5]

1 = Very Fast (CUF 101)
3 = Fast (Saranac)
5 = Intermediate (Ranger)
7 = Slow (Vernal)
9 = Very Slow (Norseman)

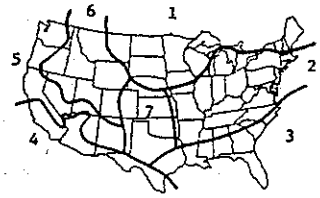
TEST LOCATION: Evansville, WI

4. AREAS OF ADAPTATION IN U.S. (Where tested and proven adapted):

[1] Primary Area of Adaptation

[2] [6] Other Areas of Adaptation

1 = North Central
2 = East Central
3 = Southeast
4 = Southwest
5 = Moderately Winterhardy Intermountain
6 = Winterhardy Intermountain
7 = Great Plains
8 = Other *(Specify)* _____



5. FLOWERING DATE (When 10% of plants possess open flowers at time of first spring cut):

[0][5] Days Earlier Than . . . . . [5]
Same As . . . . . [4]
[0][4] Days Later Than . . . . . [3]

1 = CUF 101
2 = Mesilla
3 = Saranac
4 = Vernal
5 = Norseman

TEST LOCATION: Warden, WA

9500026

6. PLANT COLOR (Determined from healthy regrowth 3 weeks after first spring cut, controlling leafhoppers if necessary):

[2] 1 = Very Dark Green (524) 2 = Dark Green (Vernal) 3 = Light Green (Ranger)

COLOR CHART VALUE (Specify chart used): Munsell Color Charts, 1st Edition, 1952. Munsell Co., Baltimore,

APPLICATION VARIETY: 5/6

VERNAL: 5/6 (WL 322 HQ = 4/6)

TEST LOCATION: Evansville, WI - Measurements taken June 23,1993; leafhoppers controlled with insectici

7. CROWN TYPE (Determined from spaced plantings):

[1] Noncreeping Types: 1 = Broad (Vernal) 2 = Intermediate (Saranac) 3 = Narrow (CUF 101)

Creeping Types: 4 = Creeping Rooted (Rangelander) 5 = Rhizomatous (Rhizoma)

8. FLOWER COLOR (Determine frequency of plants for each color class as defined by USDA Agricultural Handbook No. 424 (Barnes 1972), allowing all plants in plot to flower):

[099] % Purple and Violet (Subclasses 1.1 to 1.4)

[001] % Variegated Other Than Blue (Subclasses 2.1, 2.2, 2.5 to 2.9)

[0] % Cream (Class 3)

[0] % Blue (Subclasses 2.3 and 2.4)

[0] % Yellow (Subclasses 4.1 to 4.4)

[0] % White (Class 5)

TEST LOCATION: Warden, Washington

9. POD SHAPE (Determine frequency of plants with the following pod shapes produced on well cross-pollinated racemes):

[100] % Tightly Coiled (One or more coils, center more or less closed)

[0] % Loosely Coiled (One or more coils, center conspicuously open)

[0] % Sickle (Less than 1 coil)

TEST LOCATION: Warden, Washington

10. PEST RESISTANCE: Provide in the appropriate column, trial data for application variety, and resistant (R) and susceptible (S) check varieties, synthetic generation tested, average severity index scores (ASI), least significant difference statistics (LSD .05), the institution in charge of test, year, and location of test, and whether test is a field or laboratory evaluation. Describe scoring system, and any test procedure which differs from standard methods proposed by Elgin (1982). Trial data from other test years or locations should be presented whenever available on a separate document as Exhibit D.
Seeds of the check varieties and germplasm lines listed below can be obtained from the USDA Field Crops Laboratory, Bldg. 001, Rm. 335, BARC-West, Beltsville, MD 20705. Although comparisons with check varieties listed below are preferred, comparisons with any appropriate check variety recommended by Elgin (1982) may be presented.

A. DISEASE RESISTANCE: DISEASE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Anthracnose, Race 1 *(Colletotrichum trifolii)* (HR)	Application	1	62	146	---	% Resis. LSD (.05) 6.0	W-L Research, Inc. Evansville, WI (199
	~~Arc (R)~~ Saranac AR (R)		45	140	---		
	Saranac (S)		0	138	---		
	SCORING SYSTEM: Percent resistance based on seedling survival.						
Anthracnose, Race 2 *(Collectotrichum trifolii)*	Application						
	Saranac AR (R)						
	Arc (S)						
	SCORING SYSTEM:						
Bacterial Wilt *(Corynebacterium insidiosum)* (HR)	Application	1	66	152	1.51	0.38	W-L Research, Inc. Evansville, WI (199
	Vernal (R)		42	164	2.19		
	~~Narragansett (S)~~ Sonora (S)		0	157	4.17		
	SCORING SYSTEM: Plants scored 0-5; 0 and 1 resistant and 5 = dead plant.						
Common Leafspot *(Pseudopeziza medicaginis)*	Application						
	MSA-CW3AN3 (R)						
	Ranger (S)						
	SCORING SYSTEM:						

10. A. PEST RESISTANCE (Continued):

DISEASE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Downy Mildew *(Peronospora trifoliorum)*	Application						
Isolate, if known:	Saranac (R)						
	Kanza (S)						
	SCORING SYSTEM:						
Fusarium Wilt *(Fusarium oxysporum f. medicaginis)*	Application	1	69	139	1.32		
(HR)	~~Moapa-69 (R)~~ Agate (R)		54	139	2.07	0.40	W-L Research, Inc Evansville, WI (19
	~~Narragansett (R)~~ MnGN-1 (S)		8	145	3.72		
	SCORING SYSTEM: Plants scored 0-5; 0 and 1 resistant and 5 = dead plant.						
Phytophthora Root Rot *(Phytophthora megasperma f. medicaginis)*	Application	2	62	219	---	% Resis. LSD (.05) 10	W-L Research, Inc. Evansville, WI (19
(HR)	Agate (R)		43	203	---		
	Saranac (S)		2	211	---		
	SCORING SYSTEM: Percent resistance based on seedling survival.						
Verticillium Wilt *(Verticillium alboatrum)*	Application	1	39	285	3.19		
(R)	Vertus (R)		40	270	3.09	0.36	W-L Research, Inc. Evansville, WI (19
	Saranac (S)		3	270	4.64		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						
Other *(Specify)* Lepto leaf spot	Application	1	21	143	3.43		
	(R) MSA-PL-L		25	145	3.51	0.29	W-L Research, Inc. Evansville, WI (19
(MR)	(S) Ranger		4	143	3.78		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 3-5 susceptible.						
Other *(Specify)* Aphanomyces root rot	Application	1	11	213	3.92		
(LR)	(R) WAPH-1		50	206	2.69	0.48	W-L Research, Inc. Evansville, WI (19
	(S) Agate		0	214	4.70		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						

B. INSECT RESISTANCE:

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT DEFOLIATION	DEFOLIATION IN PERCENT OF RESISTANT CHECK	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Alfalfa Weevil *(Hypera postica)*	Application						
	Arc (R)			100			
	Saranac (S)						
	SCORING SYSTEM:						

10. B. INSECT RESISTANCE (Continued):

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT SEEDLING SURVIVAL	NUMBER OF SEEDLINGS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Blue Alfalfa Aphid *(Acyrthosiphon kondoi)* (LR)	Application	1	12	186	4.0	0.5	W-L Research, Inc. Bakersfield, CA (19
	CUF 101 (R)		55	186	2.4		
	~~PA-4 (S)~~ Caliverde (S)		0	182	4.9		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						
Pea Aphid *(Acyrthosiphon pisum)* (R)	Application	1	42	174	2.4	0.4	W-L Research, Inc. Bakersfield, CA (19
	Kanza (R)		45	179	2.3		
	Ranger (S)		3	183	4.4		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						
Spotted Alfalfa Aphid *(Therioaphis maculata)* Biotype, if known: (H) (MR)	Application	1	19	192	3.6	0.4	W-L Research, Inc. Bakersfield, CA (19
	Kanza (R)		35	190	2.8		
	Ranger (S)		1	190	4.7		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Potato Leafhopper Yellowing *(Empoasca fabae)*	Application						
	MSA-CW3An3 (R)						
	Ranger (S)						
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

C. NEMATODE RESISTANCE: NEMATODE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Northern Root Knot *(Meloidogyne hapla)*	Application						
	Nev. Syn. XX (R)						
	Lahontan (S)						
	SCORING SYSTEM:						

10. C. NEMATODE RESISTANCE (Continued):

NEMATODE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Southern Root Knot *(Meloidogyne incognita)*	Application						
	Moapa 69 (R)						
	Lahontan (S)						
	SCORING SYSTEM:						
Stem Nematode *(Ditylenchus dipsaci)*	Application	1	38	165	3.0	0.3	W-L Research, Inc. Warden, WA (1992)
(R)	Lahontan (R)		50	166	2.7		
	Ranger (S)		7	174	4.0		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

11. INDICATE THE VARIETY THAT MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR EACH OF THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
Winterhardiness	Vernal	Plant Color	Crown II
Recovery After 1st Cut	Profit	Crown Type	DK 122
Area of Adaptation	WL 225	Combined Disease Resistance	Crown II
Flowering Date	Vernal	Combined Insect Resistance	DK 122

REFERENCES

Barnes, D.K. 1972. A System for Visually Classifying Alfalfa Flower Color. U.S. Dep. Agric. Handb. 424. 18 pp. (Note: Greenish cast of plate 6, A and B is an artifact of printing, actual colors a blend of yellow and white.)

Elgin, J.H., Jr., (ed.). 1982. Standard Tests to Characterize Pest Resistance in Alfalfa Cultivars. U.S. Dep. Agric. Tech. Bull. (In Press).

Gunn, C.R., W.H. Skrdla, and H.C. Spencer. 1978. Classification of Medicago sativa L. using legume characters and flower colors. U.S. Dep. Agric. Tech. Bull. 1574. 84 pp.

Munsell Color Co. 1977. Munsell Plant Tissue Color Charts. Munsell Color Co., Inc. Baltimore.

NOTE: Any additional descriptive information and supporting documentation may be provided as Exhibit D.

Exhibit D

Additional Description of Variety

WL 252 HQ is a fall-dormant alfalfa variety adapted for use in the northeastern, north central, and northwestern United States for hay, haylage, and dehydration purposes. Mid-summer growth is erect and fall growth is semi-erect. At first flower in the Fall, approximately 58% of the plants show multifoliate expression (see table below).

Multifoliate Expression -- Evansville, WI*
Planted 4/10/92 Scored 9/25/92

Entry	ML Expression** (% plants)
WL 252 HQ	58
WL 322 HQ	0
Legend	17
Crown II	55
MultiKing 1	60
Mean	44
LSD (.05)	10
CV %	9.9

* Evaluation consisted of a space-planted nursery with four replicates, approximately 30 plants per replicate.

** Scoring system used: Percent of plants with at least one ML leaf.

Exhibit E

Statement of Applicant's Ownership

WL 252 HQ was developed by Dr. Michael A. Peterson, an employee of W-L Research, Inc.; all rights to any invention, discovery, or development made by this employee while employed at W-L Research, Inc. were assigned to W-L Research, Inc. with no rights of any kind retained by Dr. Michael Peterson.

Application for plant variety protection on WL 252 HQ has not been filed in any other country.